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JAPANESE MEDICAL EQUIPMENT

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LABORATORY, CHEMICAL, FIELD

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MEDICAL ANALYSIS SECTION
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Laboratory, Chemical, Field

SOURCE: Tokyo, Japan.

IMPORTANCE: Not previously reported. A small, compact field chemical and pathological laboratory for the analysis of gases used in warfare.

DESCRIPTION: This unit consists of 9 chests, numbered from 1 to 8, with one accessory chest also labelled #1. Each is wooden, metal-reinforced, brown-lacquered, average size 27 3/4" x 19 1/2" x 14" outside dimensions, 3/4" thickness, with metal hinges and clasps. The majority of the chests have an inventory list inside the cover. The Japanese characters on top of each box read "Chemical Laboratory, for Chemical Warfare". Additional characters appear on the accessory chest labelled #1 and read "Accessory Chest Attached To Chemical Laboratory Set, for Chemical Warfare". Four boxes are segmented and the others have trays and boxes which fit inside the Chests.

Of the 9 chests, 1 contains analytical glassware, 1 contains gas sampling bottles, 2 contain chemicals and reagents, 1 contains photographic and projection equipment, and the remaining 4 contain miscellaneous laboratory equipment.

Records and forms employed in administrative procedures are mentioned in this report. An inventory list of each chest is included,

as are photographs of the complete unit and of items of special interest. Although many of the chests were incomplete, selected items of special interest constitute the following: 2 types of absorption apparatus, gas pipettes, clamps and clamp holders for burettes, gas sampling bottles, a collapsible test tube support and 2 types of collapsible animal cages.

COMMENT: This chemical Laboratory is excellently packed and the available equipment and chemicals are of the best quality that the Japanese produce. The quality of the chemicals is frequently indicated by the use of the words "pure" and "most pure". Occasionally, the letters P.J., referring to the Japanese Pharmacopoeia, are found. The specifications, "A.R." (Analytical Reagent) or "C.P." (Chemically pure), have not been encountered.

Since many of the listed items were missing when the unit was received, it is impossible to give complete descriptions of the original contents. The laboratory is well equipped to fulfill its mission - the rapid chemical analysis and identification, in the field, or gases used in warfare.

If this unit was a standard item of issue and was widely distributed to field units, it may be inferred that the enemy expected the wholesale use of gases by the Allied Forces and was well-prepared to conduct chemical analysis in the field.

This laboratory unit serves as substantiating evidence for the current belief that the enemy had no separate branch of service comparable to the Chemical Warfare Service of the United States

Army. The combination into one set, of sufficient equipment to permit both the chemical analysis of gases and the pathological examination of post-mortem tissues from gas casualties, is a novel feature. It implies that some of their medical personnel were sufficiently well-trained to function as technicians in both pathology and the chemical analysis of gases.

- Photographs: Fig. 1 - 9 cases composing the unit.
Fig. 2 - Absorption apparatus.
Fig. 3 - Absorption apparatus.
Fig. 4 - Ring stand with burette holders.
Fig. 5 - Gas sampling tubes, graduated, with stop cocks.
Fig. 6 - Pipettes.
Fig. 7 - Coleman type burner.
Fig. 8 - Tripod stand, collapsible.
Fig. 9 - Animal cage.
Fig. 10 - Animal cage.
Fig. 11 - Collapsible test tube rack.
Fig. 12 - Collapsible test tube rack, set up.
Fig. 13 - Gas sampling bottle, vacuum type.
Fig. 14 - Gas sampling bottle, vacuum type.
Fig. 15 - Gas sampling bottle, vacuum type.



Fig. 1 - 9 cases composing the unit.



Fig. 2 - Absorption apparatus.

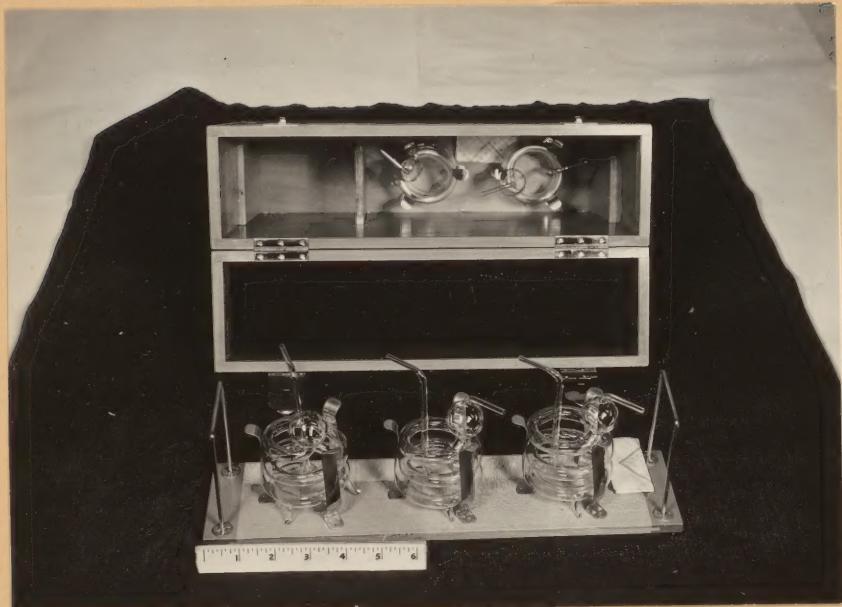


Fig. 3 - Absorption apparatus.

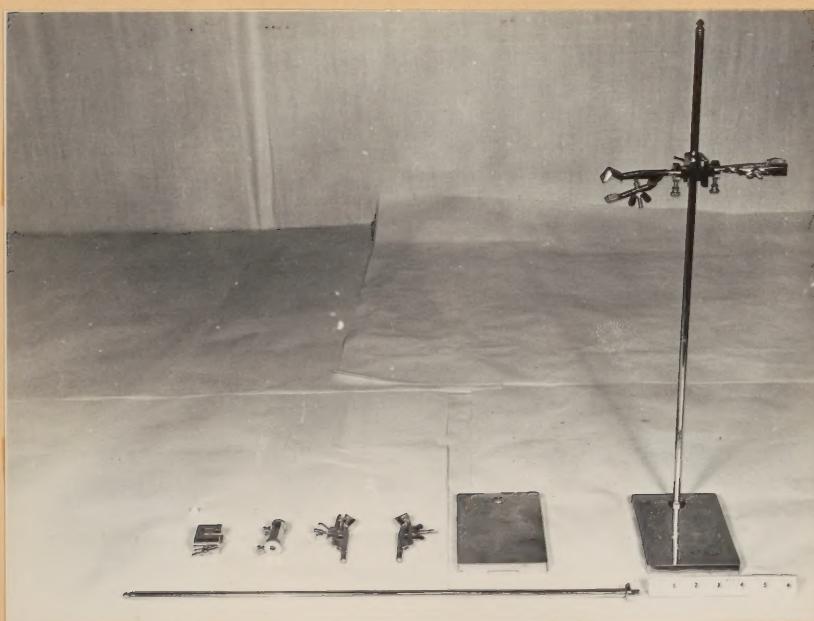


Fig. 4 - Ring stand with burette holders.



Fig. 5 - Gas sampling tubes, graduated, with stop cocks.

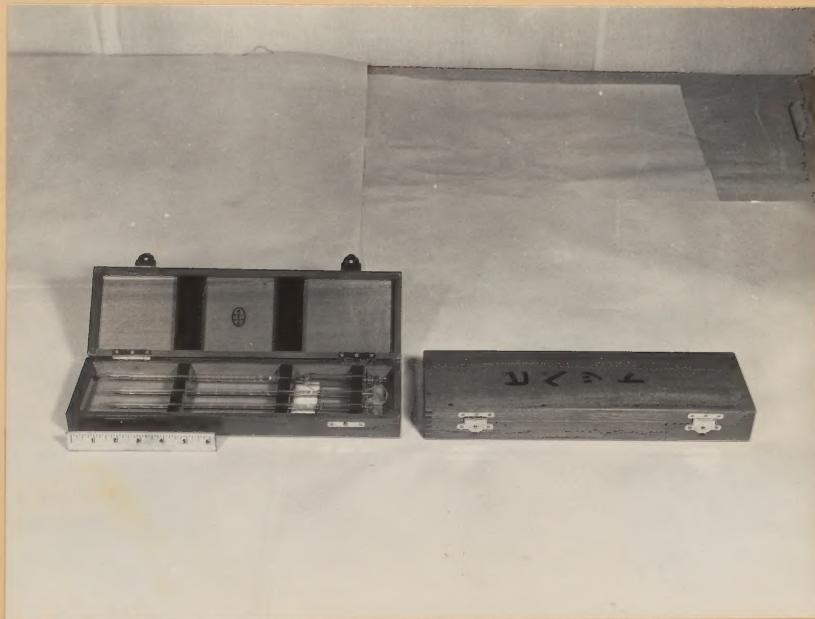


Fig. 6 - Pipettes.



Fig. 7 - Coleman type burner.

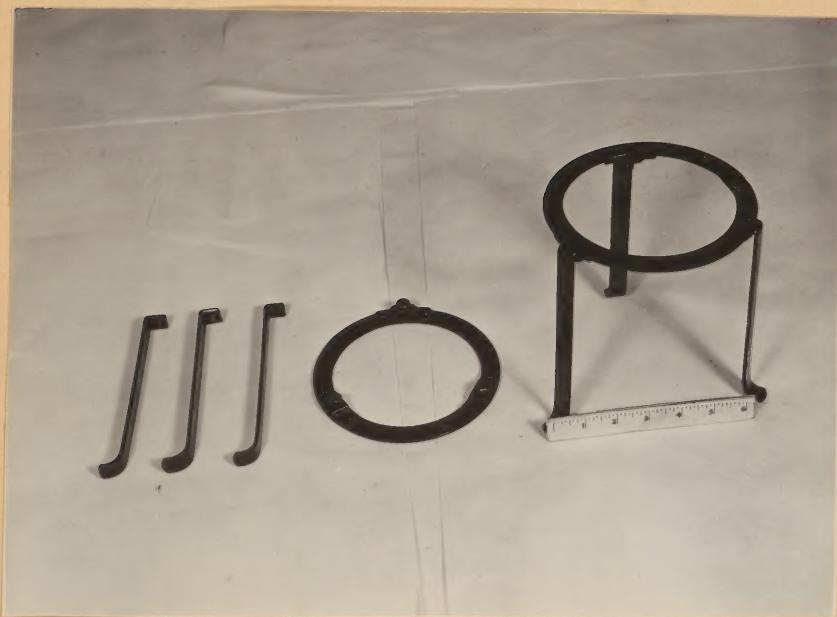


Fig. 8 - Tripod stand, collapsible.

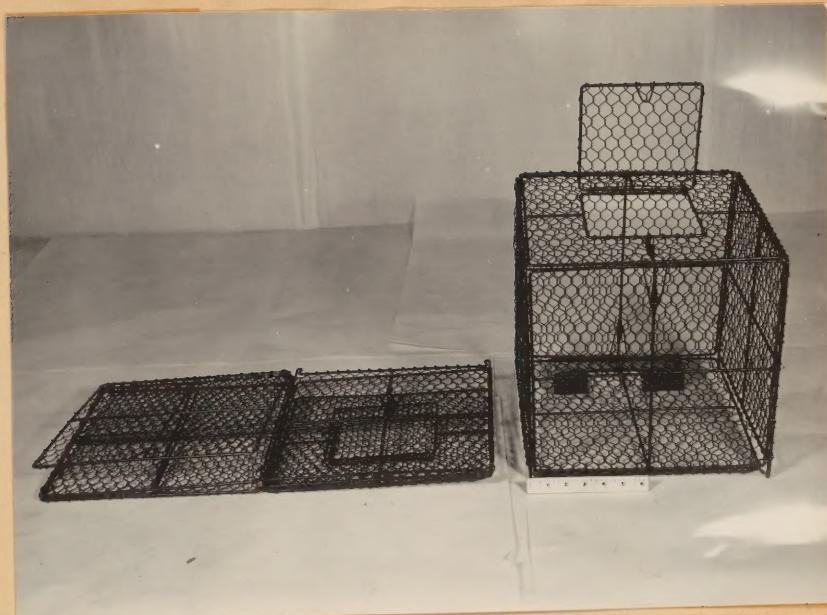


Fig. 9 - Animal cage.

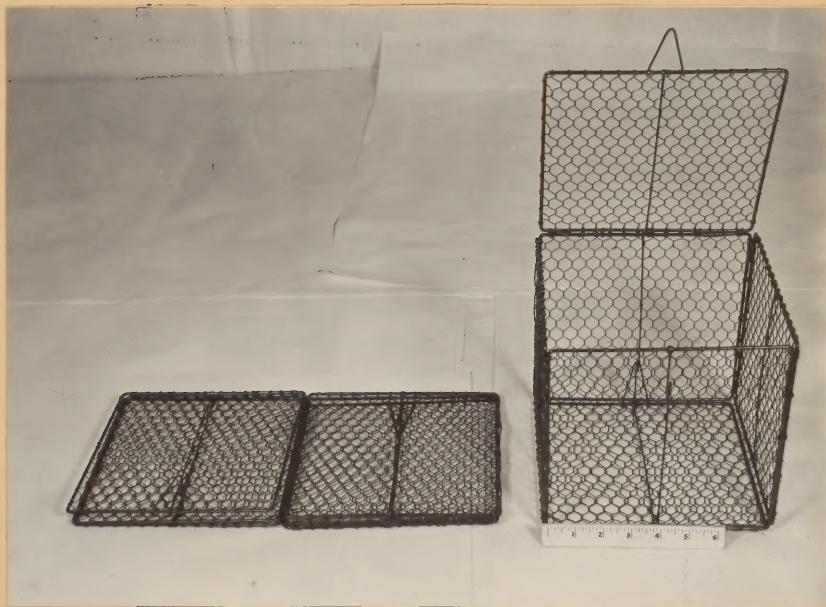


Fig. 10 - Animal cage.

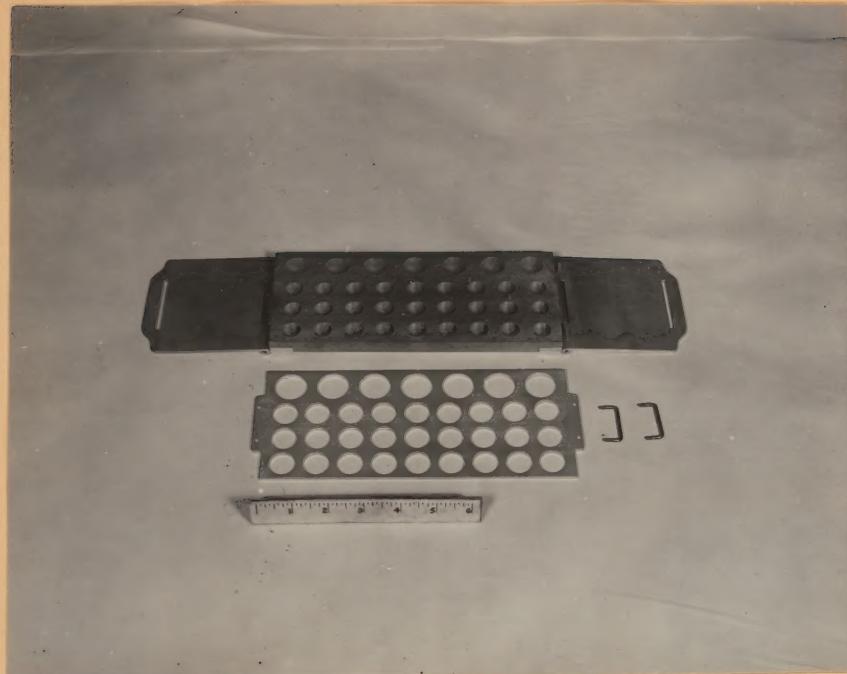


Fig. 11 - Collapsible test tube rack.

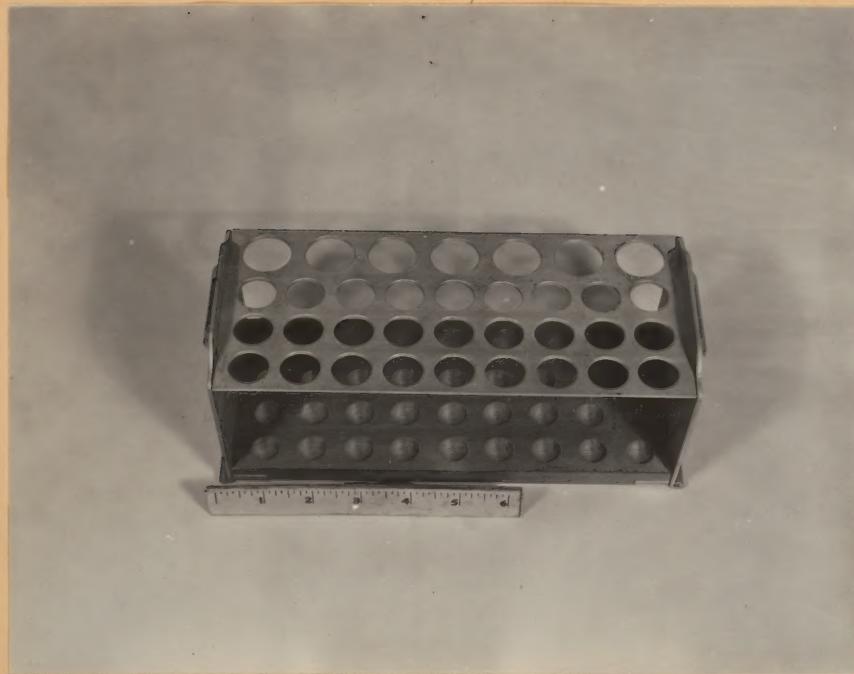


Fig. 12 - Collapsible test tube rack, set up.



Fig. 13 - Gas sampling bottle, vacuum type.



Fig. 14 - Gas sampling bottle, vacuum type.



Fig. 15 - Gas sampling bottle, vacuum type.

INVENTORY OF LABORATORY, CHEMICAL, FIELD

CHEST #1

1.	Spiral tubes, for absorption apparatus, in wooden case, 14 3/4" x 12 1/4" x 4 1/8"	ea	5
2.	Absorption apparatus, "A", in wooden case, 14 3/4" x 10 1/2" x 6 1/4" Pipette, volumetric, uncalibrated, 15 cc Tubing, 4 mm, 3 3/4" long Tubes, absorption, spiral Tube, drying, glass stoppered, 10 cm Adapter, unidentified type	ea set	1 2
3.	Pipette, gas, in wooden case, 14 3/4" x 4 1/4" x 1 3/4" Pipette, gas, 5cc Pipette, gas, 1cc	ea set	1 2
4.	Absorption apparatus, "B", in wooden case, 14 3/4" x 10 1/2" x 3 3/4" Tube, gas sampling, with 1 stop-cock and 1 combination ground glass stopper and 2-way stop-cock, 250 cc, graduated at 5 cc intervals Tube, gas sampling, with 1 stop-cock and 1 wide mouth for rubber stopper, 250 cc, graduated at 5 cc intervals	ea set	3 1
5.	Absorption apparatus, "B", identical with Absorption apparatus, "B" listed above except for lack of calibration	set	1
6.	Paper, filter, 9 cm, 100 circles	ea	2
7.	Clamp, extension, for burettes, 3 1/2"	ea	8
8.	Clamp, extension, holder, in 2 separate parts, with screw attachment, each to hold 2 clamps, extension	set	4
9.	Burette	set	1
10.	Brush, burette	ea	2
11.	Plaster, adhesive, 500 cm x 2.5 cm	ea	1
12.	Zinc oxide, bottle of 50 gm	ea	3
13.	Tag, emergency, medical (EMT, equivalent of Form 52b, Med Dept, US Army), book of 20	ea	1

14. Support stand: Base, chrome-plated steel, 4 1/4" x 6 3/8".
 Rod, chrome-plated steel, 23" long, 5/16" in diameter, for
 burettes ea 2

CHEST #1

(Accessory box attached to Chemical Laboratory.)

1. Bottle, gas sampling, sealed, evacuated, 1000 cc, in
 corrugated paper carton, 16 1/2" x 3 1/2" x 3 1/2" ea 8 *
2. Bottle, gas sampling, sealed, evacuated, 500 cc, in
 corrugated paper carton, 14 1/4" x 3" x 3" ea 24 *
3. Bottle, gas sampling, sealed, evacuated, 250 cc, in
 corrugated paper carton, 12" x 2 3/4" x 2 3/4" ea 21 *

* Each bottle is supplied with rubber tubing, 1/4" o.d., 1/16" wall thickness, 2" long, for sealing the gas sampling bottle after the sample is collected; one end of the rubber tubing is plugged with an inserted glass rod.

CHEST #2

1. Flask, volumetric, 1000 cc ea 1
2. Tube, round, graduated ea 1
3. Flask, washing, without spraying tube ea 1
4. Tube, spraying, for flask, washing ea 2
5. Funnel ea 2
6. Beaker ea 3
7. Support, test tube, aluminum, wood base, collapsible,
 with 7 x 25 mm diameter openings and 27 x 20 mm diameter
 openings ea 1
8. Wire gauze, copper, asbestos impregnated, 6" x 6" ea 5
9. Record card, miscellaneous (white) ea 100
10. Record card, gas analysis (blue) ea 100
11. Record card, pathological and toxicological (pink) ea 100
12. Reference Book ea 3
- a. Handbook of Practical Chemistry, compiled
 by YOSHIKIYO OSHIMA of the Industrial Chemistry Association, 1930, published by EIZABURO FUJII, No. 3, TATAMICHO, KYOBASHIKU, TOKYO ea 1 *

b.	Analytical Chemistry, MOTOOKI MATSUI, D. Sc., Revised, 1933, SHOKABO Co. Ltd., No. 54, NAKAROKUBANCHO, KOJIMACHIKU, TOKYO	ea	1
c.	Book, title unknown	ea	1
13.	Blank forms	ea	100
14.	Note Book	ea	4
15.	Stopcock, 2-way	ea	1
16.	Stopcock, 3-way	ea	1
17.	Corkscrew	ea	1
18.	Mortar, medium size	ea	1
19.	File, metal	ea	1
20.	Spoon, metal	ea	1
21.	Spoon, Buffalo horn	ea	2
22.	Tube, quartz	ea	2
23.	Tube, detecting	ea	10
24.	Cotton, lead acetate impregnated	gm	50
25.	Test paper	varieties	10
26.	Flask, Kohlmann (Erlenmeyer-type), 50 cc	ea	10
27.	Pencil	ea	3
28.	Rods, glass, 6mm, 12" long	ea	5
29.	Message envelopes	ea	200
30.	Stopper, rubber, solid, #5	ea	12
31.	Tubing, rubber, vulcanized	meters	10
32.	Tubing rubber, steam-treated	meters	10

* Forwarded to WDC

CHEST #3

1. Pump, vacuum, hand-powered, belt-driven, positive displacement, rotating eccentric-type, oil sealed, portable, wood base, 26 x 9 1/2" ea 1

2.	Burner, brass, pressure type, kerosene-burning	ea	2
3.	Tripod, iron, collapsible, 8" o.d. of ring, height 6", to fit burner	ea	2
4.	Can, rectangular, 7" x 8" x 7", with spout, for 5000 gm kerosene	ea	1
5.	Kerosene, in can, rectangular	gm	5000
6.	Manometer, calibrated in mm, in wooden case, 12 3/4" x 8 1/2" x 4 1/2", for pump, vacuum	ea	1
7.	Tubing, rubber, pressure, 21 mm o.d., 6 mm i.d., 7 mm wall thickness	ft	10
8.	Wrench, monkey, 7" long, with screw driver end	ea	1
9.	Tripod, iron, 6" o.d. of ring, height 7", collapsible, with thumb-screw to tighten legs to ring	ea	2
10.	Funnel, chrome-plated steel, 1 1/2" diameter, with wire filter	ea	1
11.	Oil can, 3" diameter of base, height 7 1/2"	ea	1
12.	Decoction apparatus	ea	1

CHEST #4

1.	Cage, animal, iron wire, collapsible, painted black, 12 3/4" x 12 3/4" x 12 3/4"	ea	2
2.	Cage, animal, iron wire, collapsible, painted black, 8 1/4" x 8 1/4" x 8 1/4"	ea	10
3.	Pan, disinfecting, enamel, 8" x 6 1/4" x 1 1/4"	ea	2
4.	Sprayer, hand-operated, chrome-plated steel, cylindrical, diameter 4 3/4", height 7 3/4"	ea	1
5.	Tubing, rubber, extension, length 40", for sprayer	ea	1
6.	Bottle, specimen, pathological, wide-mouth, glass- stoppered, 3 oz	ea	10
7.	Microscope, medium size	ea	1
8.	Microtome, small size	ea	1
9.	Dish, Petri	ea	10
10.	Tray, glass	ea	10
11.	Lids	ea	100

12.	Slide, micro, 76 x 26 x 1/2 mm, box of 50	ea	4
13.	Cover glass, 24 x 32 mm, box of 50	ea	2
14.	Chart, density of gases	ea	1
15.	Spectroscope, portable	ea	1
16.	Labels	ea	50
17.	Labels, small	ea	100
18.	Pencil	ea	3
19.	Thread, hemp, autopsy	gm	50
20.	Card, file	ea	100
21.	Tape, measuring, small	ea	1
22.	Case, soap	ea	1
23.	Clamp, shut off, screw adjustment	ea	9
24.	Forceps	ea	9
25.	Strap, leather, 1" x 48", with buckle	ea	1
26.	Set, instrument, accessory, for microtome, large	ea	1
27.	Set, instrument, accessory, for microtome, small	ea	1
28.	Tools, miscellaneous, in bag:	set	1
	Can opener	ea	1
	Knife	ea	1
	Wrench, monkey, 7"	ea	1
	Screw driver, combination, 3 sizes	ea	1
	Scissors	ea	1
	Forceps	ea	2

CHEST #5

1.	Balance, single beam, unequal arm, with sliding weight and added weights, capacity 100 gm, in wooden box, 14 3/8" x 7 3/4" x 4 1/2"	ea	1
2.	Balance, beam	ea	1
3.	Microbalance	ea	1
4.	Balance, hanger	ea	1
5.	Cotton, absorbent	gm	1000

6. Gauze, roll	ea	5
7. Cotton, roll	ea	2
8. Bottle, gas sampling, sealed, evacuated, 1000 cc	ea	6
9. Bottle, gas sampling, sealed, evacuated, 250 cc	ea	3

CHEST #6

1. Creosote, 500 gm	ea	1
2. Glycerin, 500 gm	ea	1
3. Chloroform, 500 gm	ea	2
4. Potassium bromide, 500 gm	ea	1
5. Starch solution, 100 gm	ea	1
6. Eosin solution, 25 gm	ea	1
7. Hematoxylin solution, 25 gm	ea	1
8. Sodium thiosulfate, 500 gm	ea	5
9. Zinc Iodide - starch solution, P.J.V., 30 gm	ea	2
10. Zinc Oxide, 500 gm	ea	1
11. Chlorinated lime, 500 gm	ea	2
12. Zinc, metal, mossy, 250 gm	ea	1
13. Potassium permanganate, 500 gm	ea	1
14. Sodium Iodide, 200 gm	ea	1
15. Sodium carbonate, decahydrate, 500 gm	ea	1
16. Charcoal, activated, powder, 250 gm	ea	1
17. Acid, sulfuric, sp. gr. 1.84, 96% 500 gm	ea	2

CHEST #7

1. Acid, hydrochloric, 500 gm	ea	1
2. Acid, nitric, 500 gm	ea	1
3. Acid, acetic, glacial, 500 gm	ea	1
4. Methenamine, 500 gm	ea	1

5.	Ether, 500 gm	ea	1
6.	Carbon tetrachloride, 500 gm	ea	1
7.	Alcohol, 500 gm	ea	2
8.	Xylol, 500 gm	ea	1
9.	Acetone, 500 gm	ea	3
10.	Calcium chloride, 500 gm	ea	5
11.	Diphenylamine, 25 gm	ea	1
12.	Barium sulfate, 25 gm	ea	1
13.	Sodium hydroxide, 25 gm	ea	1
14.	Lacmoid (Resorcinol Blue), scales, 25 gm	ea	1
15.	Palladium (ous) chloride, 25 gm	ea	1
16.	Stannous chloride, 25 gm	ea	1
17.	Methylene blue, 25 gm	ea	1
18.	Pyridin, 25 gm	ea	1
19.	Tetranitromethane, ampul of 25 gm	ea	1
20.	Sudan III, 25 gm	ea	1
21.	Canada balsam, 25 gm	ea	1
22.	Starch, soluble, 25 gm	ea	1
23.	Sodium sulphite, 25 gm	ea	2
24.	Lead acetate, 25 gm	ea	1
25.	Fluorescein, 25 gm	ea	1
26.	Potassium carbonate, 25 gm	ea	2
27.	Mercury bichloride, 25 gm	ca	1
28.	Para-Dimethylaminobenzaldehyde, 25 gm	ea	1
29.	Potassium iodide, 100 gm	ea	1
30.	Acid, sulfuric, 1-N, 25 gm	ea	6
31.	Acid, sulfuric, 0.1-N, 25 gm	ea	3

32.	Potassium hydroxide, 0.1-N, 25 gm	ea	3
33.	Potassium bromide, solution, 100 gm	ea	1
34.	Potassium chromate, solution, 100 gm	ea	1
35.	Phenolphthalein, solution, 25 gm	ea	1
36.	Ferric ammonium sulfate, solution, 100 gm	ea	1
37.	Bottle, balsam	ea	1
38.	Bottle, dropping	ea	2
39.	Bottle, dye	ea	2
40.	Bottle, reagent	ea	22
41.	Test tube, lipped, 17 x 185 mm	ea	100
42.	Brush, test tube	ea	2

CHEST #8

1.	Film splicing set	ea	1
2.	Film, 16 mm, panchromatic, 100 ft	ea	10
3.	Movie projector	ea	1
4.	Movie camera	ea	1
5.	Projection screen	ea	1
6.	Film rewinding equipment	ea	1